

BUTTON SECTION

The Button Section includes the assignment buttons (Audio In, Logic In, Logic Out, Groups, Input Proc, Out Proc, Mute Ind) and the DSP buttons (Input EQ, Graph EQ, Param EQ, Compress, Gate, Delay, X-Over).

ASSIGNMENTS

Audio In

Click this button to open the **Audio Input** window.

Name: Enter a name for each channel with the keyboard. It will accept up to 32 characters.

Force On: Assign a force-on level to each input, from OFF to +10 dB. Click and drag in the **Force On Level** box to change the force-on level setting. The force-on action is always relative to the current mix level.

Force Off: Assign a force-off level to each input, from OFF to +10 dB. Click and drag in the **Force Off Level** box to change the force-off level setting. The force-off action is always relative to the current mix level.

Force On Priority: Assign a priority level from 1 (highest) to 8 (lowest) for each channel's force-on function. The default setting is None.

Audio Input				
	Name	Force On Level (db)	Force On Priority	Force Off Level (db)
1	Input 1	-6.1	Priority 1	-40.0
2	Input 2	-10.0	Priority 2	-60.0
3	Input 3	-10.0	Priority 3	OFF
4	Input 4	-10.0	Priority 4	OFF
5	Input 5	-10.0	Priority 5	OFF
6	Input 6	-10.0	Priority 6	OFF
7	Input 7	-15.2	Priority 7	OFF
8	Input 8	-15.2	Priority 8	OFF



LOGIC IN

Click this button to open the **Logic Input** window. Make the following settings and assignments in the **Logic Input** window:

Logic Input			
Name	Function	Action	Affected I/O
1 Ch 1 On	Force-On	Momentary	Input 1
2 Ch 1 Off	Force-Off	Momentary	Input 1
3 Ch 1 Mute	Mute Input	Latch On	Input 1
4 Output A Mute	Mute Output	Latch Off	Output A
5 Mute Group 1	Mute Group	Toggling	Mute Group 1
6 Preset 1	Preset Recall	Latch On	Preset 1
7	Inactive	None	None
8	Inactive	None	None
9	Inactive	None	None
10	Inactive	None	None

Name: Enter a name for each Logic Input, up to 32 characters.

Function: Select one of 7 different functions in this drop-down box. The functions include Inactive, Force-on, Force-off, Mute Input, Mute Output, Mute Group, and Preset Recall.

Action: Select whether the particular function selected is momentary, latch on, latch off, or toggling. The selections will vary depending on the function selected for the Logic Input.

Affected I/O: Select which Input or Output is affected by the Logic function. The selections will vary depending on the function and action selected for the Logic Input.

See Appendix A for a chart of the Logic Input functional combinations available.

LOGIC OUT

Click this button to open the **Logic Output** window. Make the following settings and assignments in the **Logic Output** window:

Logic Output			
Name	Function	Parameter	Condition
1 Ch1 In Present	Inp Sig Present	Input 1	Input 1 signal > -40dB
2 Out A Present	Out Sig Present	Output A	Output A signal > -40dB
3 Out B Present	Out Sig Present	Output B	Output B signal > -40dB
4 Preset 1 Active	Preset Active	Preset 1	Preset 1 active
5 Priority Inactive	Priority Inactive	None	No priority input forced on
6	Inactive	None	N/A
7	Inactive	None	N/A
8	Inactive	None	N/A
9	Inactive	None	N/A
10	Inactive	None	N/A

Name: Enter a name for each Logic Output, up to 32 characters.

Function: Select one of 5 different functions in this drop-down box. These functions include Inactive, Input Signal Present, Output Signal Present, Preset Active, and Priority Inactive.

Parameter: Select the input, output, or other parameter that is being monitored by the Logic Output. The selections will vary depending on the function selected for the Logic Output.

Condition: Displays the particular condition that must be satisfied for the Logic Output to become active. The condition will vary depending on the function and parameter selected for the Logic Output.

See Appendix B for a chart of the Logic Output functional combinations available.

GROUPS

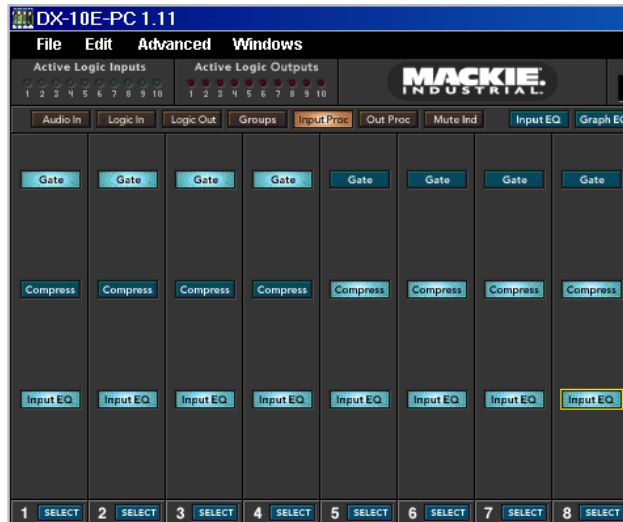
Click this button to view group assignments for crosspoints and outputs. The gain readout boxes change to a blue background and display the assigned group for the crosspoint or output. This is true of the Crosspoint Matrix and Output Sections.





INPUT PROC

Click this button to view the processors (Gate, Compressor, Input EQ) that are active for each input in the Crosspoint Matrix Section. Lit buttons show processors that are turned on. Click the buttons to turn the processors on and off for each individual input.



OUT PROC

Click this button to view the processors that are active for each output in the Crosspoint Matrix Section. These processors include Graphic EQ, Parametric EQ, X-Over, Delay, and Compressor. Lit buttons show processors that are turned on. Click the buttons to turn processors on and off for each individual output.



Note that if two or more outputs are linked via the Crossover window, only one button appears. This is true of the Graphic EQ, Parametric EQ, and X-Over output processors, as shown in outputs A, B, and C above.

MUTE IND

Click this button to view the **Active Mute Groups** indicator in the upper left corner of the screen. If a group mute button is active, the associated indicator lights up in the **Active Mute Group** indicator.



DSP

INPUT EQ

Click this button to view the Input 3-band EQ controls, superimposed over the Crosspoint Matrix Section.



Each input strip has a 3-band EQ comprised of:

1. A high-frequency shelving EQ with adjustable gain (± 15 dB) and frequency (500 Hz–20 kHz).
2. A mid-frequency parametric EQ with adjustable gain (± 15 dB), frequency (20 Hz–20 kHz), and bandwidth (0.1–6.0 octaves).
3. A low-frequency shelving EQ with adjustable gain (± 15 dB) and frequency (20 Hz–500 Hz).
4. An **ON** button to turn the EQ on and off.

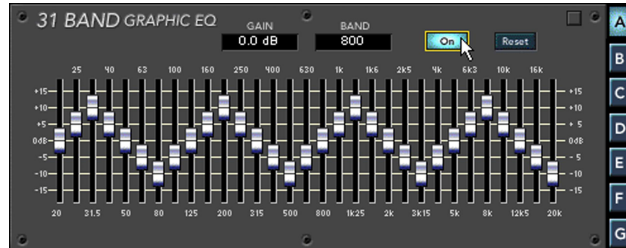
Click and drag up and down on the control knob to change the setting. Note: You can not directly enter a numeric value with the mouse and keyboard. Note that the EQ settings apply to all the outputs to which the input is assigned.

Use the arrow keys on the keyboard to make fine adjustments to a selected control, and the Page Up/Down keys to make course adjustments. Use the Tab key to quickly move the selection to adjacent controls.



GRAPH EQ

Click this button to view the 31-band 1/3-octave Graphic EQ controls for a selected output. Click the output letter buttons (A-J) to select an output.



Click the **On** button to activate the Graphic EQ for the selected output. The **Reset** button returns all the sliders to their center (0 dB) positions.

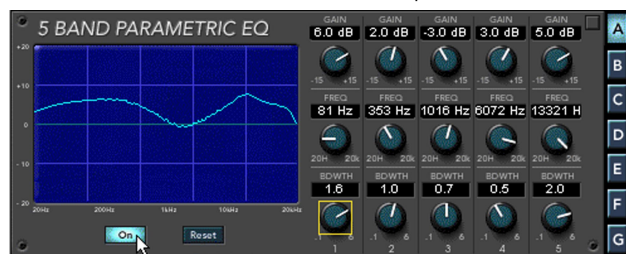
Each band is on an ISO center frequency ranging from 20 Hz to 20 kHz, with ± 15 dB gain on each band.

Click and drag on a slider knob to adjust the EQ. Use the arrow keys on the keyboard to make fine adjustments to a selected control. Use the Page Up/Down keys to make course adjustments. The selected band's **GAIN** and **BAND** (frequency) are displayed at the top of the window.

Click the right mouse button over the processor display. This brings up a menu allowing you to cut, copy, or paste the processor settings to another output.

PARAM EQ

Click this button to view the 5-band Parametric EQ controls for a selected output. Click the output letter buttons (A-J) to select an output.



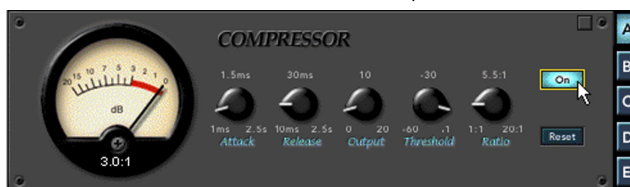
Click the **On** button to activate the Parametric EQ for the selected output. The **Reset** button returns all the controls to their center positions.

Each band has adjustable gain (± 15 dB), frequency (20 Hz–20 kHz), and bandwidth (0.1–6.0 octaves).

Click the right mouse button over the processor display. This brings up a menu allowing you to cut, copy, or paste the processor settings to another output.

COMPRESS

Click this button to view the Compressor for a selected input or output. Click an input **SELECT** button to select an input. Then click the output letter buttons (A-J) to select an output.



Click the **On** button to activate the Compressor for the selected input or output. The **Reset** button returns all the controls to their default positions.

The Compressor has five knobs: Attack, Release, Output, Threshold, and Ratio. Click and drag on the individual knobs to adjust each parameter. An analog-style meter indicates the amount of compression applied in decibels.

Click the right mouse button over the processor display. This brings up a menu allowing you to cut, copy, or paste the processor settings to another channel.

About Compression:

A compressor is used to reduce or limit transient peaks in a signal. As the input level to the compressor increases, the output level increases linearly until the threshold point is reached. After that point, the output level no longer increases linearly. Instead, it increases at a reduced rate determined by the ratio setting.

This compressor features 'soft-knee' compression. The input signal level approaches and crosses the threshold. Simultaneously, the compressor gradually starts compressing. This increases the ratio to the required setting smoothly.

- **Threshold:** This control determines the level around which the compressor begins to act on the incoming signal. It is calibrated in decibels, with a range from -60.0 dBFS to -1.0 dBFS.
- **Attack:** This determines how fast the compressor reacts once the threshold has been exceeded. It is calibrated in milliseconds, with a range from 0.1 ms to 2500 ms (2.5 seconds) per 20 dB of gain change.
- **Release:** This determines how fast the compressor turns off once the signal falls below the threshold. It is calibrated in milliseconds, with a range from 10 ms to 2500 ms (2.5 seconds) per 20 dB of gain change.
- **Ratio:** This determines the change in output level. It is a function of the change in input level (at full compression), once the threshold has been fully exceeded. It is calibrated in decibels, with a range



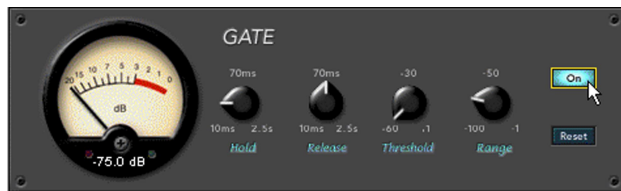
from 1.0:1 (off) to 20:1. Thus, if it is set to 10:1, an increase in input level of 10 dB results in a 1 dB increase in output level. This assumes the input is above the threshold level.

Generally, use ratio settings from 1.5:1 to 5.0:1 for compressor use. Settings from 10:1 to 20:1 are more useful for limiting purposes. This is because in that range the output level changes very little as the input increases.

- **Output:** This determines the overall gain of the compressor from input to output (as measured with the signal below the threshold level). You can use this control to compensate for the loss of gain caused by the action of the compressor. It is calibrated in decibels, with a range from 0 dB (unity) to +20.0 dB.

GATE

Click this button to view the Gate for a selected input. Click an input **SELECT** button to select an input.



Click the **On** button to activate the Gate for the selected input. The **Reset** button returns all the knobs to their default settings.

The Gate has four knobs: Hold, Release, Threshold, and Range. Click and drag on the individual knobs to adjust each parameter. An analog-style meter indicates the input signal level for the selected channel.

Click the right mouse button over the processor

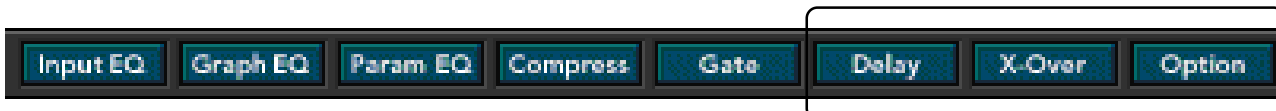
display to bring up a menu that allows you to cut, copy, or paste the processor settings to another channel.

About Gating:

A gate is used to duck or mute a channel when the signal level drops below a certain point. This can reduce the overall noise level in your mix by muting unused or noisy channels.

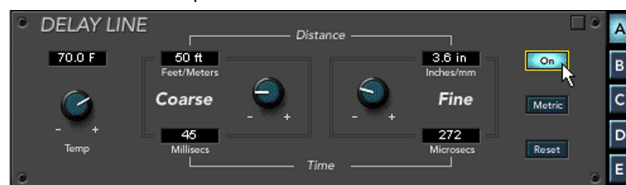
Note: When we say the gate opens, it means the gate is not acting on the signal and the signal is allowed to pass. When the gate closes, the gate acts on the signal by attenuating it.

- **Threshold:** This determines the level below which the gate closes (and above which it opens). It is calibrated in decibels, ranging from -60 dBFS to -1 dBFS.
- **Hold:** This determines how long the gate remains open after the input signal has fallen below, and remains below, the threshold before closing. It is calibrated in milliseconds, ranging from 0 ms to 2550 ms (2.55 sec).
- **Release:** This determines how fast the gate closes after the hold time has expired. It is calibrated in milliseconds, ranging from 10 ms to 2500 ms (2.5 sec) per 20 dB of gain change.
- **Range:** This determines the amount of attenuation of the input signal when the gate is closed. It is calibrated in decibels, ranging from -100 dB to -1 dB.



DELAY

Click this button to view the Delay settings for a selected output. Click the output letter buttons (A-J) to select an output.



Click the **On** button to activate the Delay Line. Click the **Metric** button to change the settings from inches/feet/Fahrenheit to mm/meters/Celsius. Click the **Reset** button to return all the knobs to their default settings.

The Delay Line has three knobs: Temp, Coarse, and Fine. Click and drag on the individual knobs to adjust each parameter.

Temp: The speed of sound varies with air temperature. Therefore it is necessary to enter the ambient air temperature. This is in order to accurately calculate the time delay required as a function of distance traveled. This control is calibrated in degrees, ranging from -40°F to 122°F (-40°C to 50°C).

Coarse: This control adjusts the delay in 1 millisecond increments, with a range from 0 ms to 200 ms. The equivalent distance the sound travels in the selected amount of time is displayed. Use this control when setting up a delay between two speakers, as in a delay tower.

Fine: This control adjusts the delay in small increments ($22.7\text{ }\mu\text{s}$), with a range from $0\text{ }\mu\text{s}$ to $997\text{ }\mu\text{s}$. The equivalent distance the sound travels in the selected amount of time is displayed. Use this control to adjust for offsets between drivers in a stack. For example, use this control to time-align a horn's compression driver and a woofer's voice coil.

Click the right mouse button over the processor display. This brings up a menu allowing you to cut, copy, or paste the processor settings to another channel.

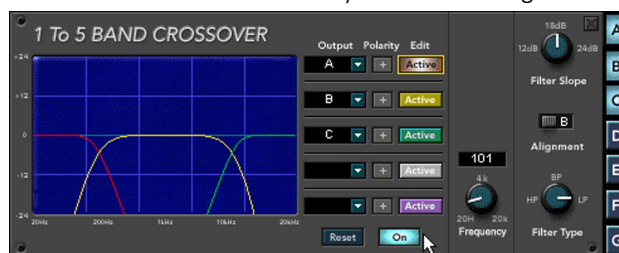
X-OVER

Click this button to view the 1 to 5-Band Crossover. The crossover window has a graphic display to indicate the number of bands and crossover points selected. Up to five outputs can be selected, which become linked to a single row of inputs. In other words, each of the eight inputs has just one mix level to the combined outputs in the crossover. This is reflected in the Crosspoint Matrix Section by "blanking out" all but the top row of crosspoints for the linked crossover outputs. Note

that only contiguous outputs may be linked to create a crossover.

Linking outputs together for the crossover automatically links those outputs in the Parametric EQ and the Graphic EQ processors.

The equalizers are located prior to the crossover in the signal chain, so all the outputs assigned to the crossover are affected by the EQ settings.



With the first band active (red active button lit), click the **On** button to turn the crossover on and off. When the crossover is turned off, all the outputs assigned to the crossover pass a full-range signal. Click the **Reset** button to return all the knobs for the currently active band to their default settings.

Output: Select the first output for the crossover (A-J). It appears in the first **Output** box. Click the arrow next to the box to select an output in the pull-down list.

Polarity: The **Polarity** button reverses the polarity of the output by 180° .

Edit: Click the **Active** button under **Edit** to adjust the settings for the selected output. Then use the Frequency, Filter Slope, Alignment, and Filter Type controls.

Filter Type: Use this control to select high-pass (HP), low-pass (LP), or band-pass (BP) filters for the selected output. Notice that the **Frequency** control selection changes to **High Freq** and **Low Freq** when **BP** is selected.

Alignment: This switch selects either Linkwitz-Riley (L) or Butterworth (B) characteristics for the selected Filter Type.

Filter Slope: Use this control to choose the roll-off curve for the frequencies above or below the cutoff frequency. When Butterworth alignment is selected, 12, 18, and 24 dB/octave slopes are available. When Linkwitz-Riley is selected, 12 and 24 dB/octave are available.

Frequency: This selects the cutoff frequency for the selected filter, with a range from 20 Hz to 20 kHz. When a bandpass filter is selected, **High Freq** and **Low Freq** controls are available.

OPTION

This button is reserved for future upgrades.

CROSSPOINT MATRIX SECTION

This section provides a view of all the input-to-output crosspoints in the mixing matrix. It has a numerical and graphical indication of the gain setting for each crosspoint.

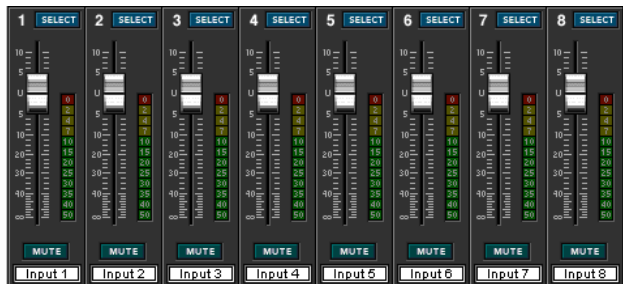


Click the associated letter button (**A-J**) in the Output Section to select an output and the horizontal row of input crosspoints is highlighted. The input faders in the Input Section now control the gain settings and mix for the selected output. Either click on the fader or click on the horizontal mini-fader indicator bar in the crosspoint to adjust the gain for the input.

Click the select (**S**) button to select the crosspoint for copying or pasting the level. Otherwise, when a group is selected, use it to assign the crosspoint to the selected group.

INPUT SECTION

This section includes the eight input faders along with their associated bargraph input level meters; Select, and Mute buttons; and name box.



The fader adjusts the mix level from the input to the output selected in the Crosspoint Matrix Section (indicated by the highlighted row). The numerical display for the level is shown at the crosspoint in the Crosspoint Matrix section. Use the arrow keys on the keyboard to make fine adjustments to the level. Use the Page Up/Down keys to make course adjustments.

The input level meter indicates the level of the input signal as it comes out of the analog to digital converters and shows the level in dBFS. If the red 0 dB portion is lit, then the signal level is above – 2 dBFS and may be clipped. Note that the meter indicates the signal level before any processing or digital gain stages. If the signal is clipping, or is too low, adjust the signal level at the source, or use the trim pots on the rear panel of the DX810.

Click the **SELECT** button when a group is selected to assign the input to the selected group. The assigned group fader then affects the signal level for that input to all ten outputs. Click the **SELECT** button when the gate or compressor windows are showing to adjust the processing options for that input.

Click the **MUTE** button to mute the input signal to all ten outputs.

Use the name box at the bottom of the Input Section to enter a name for the input (e.g., CD Left, CD Right, Vocal, Guitar, etc.), up to 32 characters.

OUTPUT SECTION

The Output Section includes the ten output faders along with their associated bargraph output level meters. This section also includes numerical gain display, mute and solo buttons, and name box.



Use the output faders to adjust the final output level of the signal. Adjust the output faders so that the associated output meter indicates around the -10 and -7 dB positions when a normal signal is going to that output. This provides the best signal-to-noise ratio for the output stage. It's okay for the -4 and -2 LEDs to blink occasionally on musical peaks. However, avoid allowing the red 0 dB indicator to light, which indicates that the signal is within 2 dB of clipping.

Note that the meter indicates the signal level after the output signal processing (i.e., Graphic EQ, Parametric EQ, Compressor, Crossover). If adjustments are made to the output processors, the output fader may need to be readjusted. This is to compensate for an increase or decrease in gain through the processors.

Click the **(M)** button to mute the output signal.

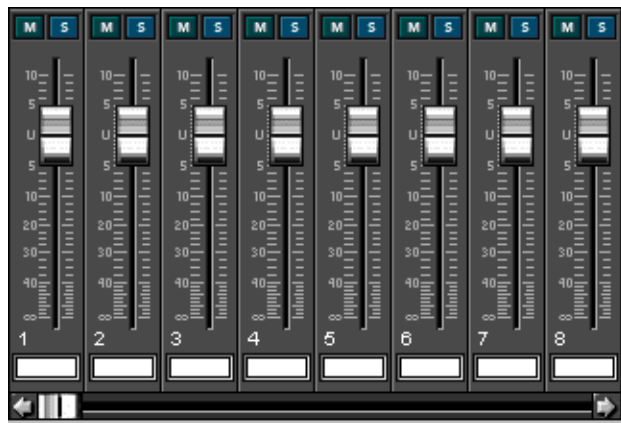
Click the **(S)** button to solo the output. This mutes all the outputs except the soloed output. This is useful for troubleshooting and listening to each output individually.

Click the letter button **(A-J)** when a group is selected to assign the output to the selected group. Click the letter button when a processing window is showing (except Gate and Input EQ) to adjust the processing options for that output.

Use the box to the right of the Output Section to enter a name for the output (e.g. Main Left, Control R), using up to 32 characters.

GROUP SECTION

This section includes the 32 control groups. Eight groups are displayed at one time. However, the horizontal fader at the bottom allows you to scroll through all the control groups.



There is a mute and select button associated with each Control Group.

To assign or unassign a crosspoint or output to a group:

1. Click the select **(S)** button for the desired group. If any crosspoints or outputs are assigned to the selected group, their select buttons light.
2. Click the select **(S)** button for the crosspoints you want to assign to the selected group. The group fader affects the mix level for each crosspoint to a single output.
3. Click the **SELECT** button in the Input Section to assign the input fader to the selected group. The group fader affects the mix level for each input to all the outputs.
4. Click the associated letter button **(A-J)** in the Output Section to assign an output to the selected group. The group fader affects a single output level.
5. Click the Groups button in the Top Section to view and verify group assignments.

Group assignments are saved in each preset. This allows different combinations of crosspoints, inputs, and outputs to be assigned to the same group number in separate presets. This is useful for room combining applications.

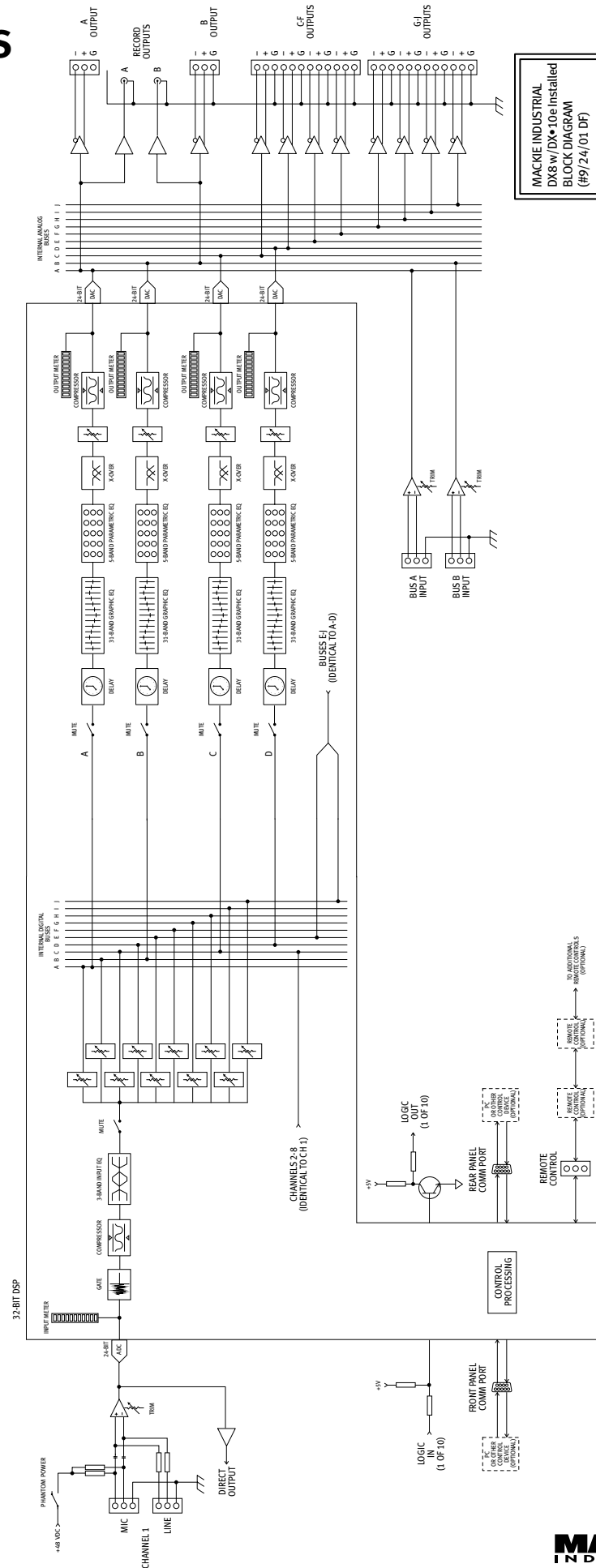
Click the **(M)** button to mute the group. This mutes all crosspoint, inputs, and outputs assigned to the group. Click the **Mute Ind** button to view the **Active Mute Groups** indicator.

The group fader controls the relative level for all the crosspoints, inputs, and outputs assigned to it. At the unity gain position (**U**), all the levels are at their assigned values and the group fader has no effect. Reduce the group fader 10 dB, and all the levels assigned to that group are reduced 10 dB, relative to their assigned value. Note that the group fader can increase the level 10 dB. However, if an assigned level is already at +10 dB, it will not change. The maximum overall gain available for any crosspoint, input, or output is +10 dB.

Use the box at the bottom of the Group Section to enter a name for the group (e.g., Voc, Drum), using up to 32 characters.

6. SPECIFICATIONS

DX810 Block Diagram



MACKIE INDUSTRIAL
DX8 w/ DX•10e installed
BLOCK DIAGRAM
(#9/24/01 DF)

DX810 SPECIFICATIONS

INPUTS / OUTPUTS

Inputs 1-8:	Balanced, Phoenix-type terminals
Bus A and B:	Balanced, Phoenix-type terminals, Direct to Mix Buses
Outputs A-J:	Balanced, Phoenix-type terminals
Record Outputs A/B:	Unbalanced, RCA
Direct Outputs 1-10:	Unbalanced on DB15 (bottom row is signal return)
Logic Inputs:	10 Inputs on DB25 Series resistance: 570Ω Internal pull-up: 47 kΩ to +5 VDC Input voltage: +5.5 VDC maximum Active voltage: +1.0 VDC maximum
Logic Outputs:	10 open-collector Outputs on DB25 Series resistance: 550 Ω Internal pull-up: 10 kΩ to +5 VDC Active current: 10 mA maximum Active voltage: +0.8 VDC max @ 1 mA
Serial Ports:	2 RS-232C on DB9 (COMM PORTS)

PANEL CONTROLS

Input Trim:	8 Rotary Potentiometers
Input Gain:	2 Pushbuttons per Input
EQ:	2 Pushbuttons for Low, 2 for High
Master Output Gain:	2 Pushbuttons per Output
Mode Select:	1 Pushbutton
Power:	Rocker Switch
Phantom Power Select:	8 DIP Switches

PANEL INDICATORS

Input Levels:	12-segment LEDs per ch.
Output EQ Levels:	12-segment LEDs per ch.
Mode Status:	3 LEDs; A/B/LOCK
Output Levels:	12-segment LEDs per ch.
Volume Setting:	12-segment LED Bar Graph

LED METER VALUES

1. Red (scale: OL):	> -2 dB full-scale (> 16 dBu)
2. Yellow (scale: 2):	> -4 dB full-scale (> 14 dBu)
3. Yellow (scale: 4):	> -7 dB full-scale (> 11 dBu)
4. Yellow (scale: 7):	> -10 dB full-scale (> 8 dBu)
5. Green (scale: 10):	> -15 dB full-scale (> 3 dBu)
6. Green (scale: 15):	> -20 dB full-scale (> -2 dBu)
7. Green (scale: 20):	> -25 dB full-scale (> -7 dBu)
8. Green (scale: 25):	> -30 dB full-scale (> -12 dBu)
9. Green (scale: 30):	> -35 dB full-scale (> -17 dBu)
10. Green (scale: 35):	> -40 dB full-scale (> -22 dBu)
11. Green (scale: 40):	> -50 dB full-scale (> -32 dBu)
12. Green (scale: 50):	> -60 dB full-scale (> -42 dBu)

SIGNAL PROCESSING

General:	Five 32-bit floating-point DSPs 24-bit A/D and D/A converters 512Kx16 Flash ROM 128Kx32 SRAM (with battery backup)
Inputs:	3-band shelving EQ with parametric mid Gain: ±15 dB Corner Frequency: LO: 20 Hz-500 Hz variable HI: 500 Hz-20 kHz variable Center Frequency: MID: 20 Hz-20 kHz variable Gate on each Input Threshold: -60 dBFS to -1 dBFS Hold: 0 ms to 2500 ms Release: 10 ms to 2500 ms Range: -100 dB to -1 dB
Outputs:	Delay on each Output Temp: -40°F to 122°F (40°C to 50°C) Coarse: 0 ms to 200 ms Fine: 0 μs to 997 μs Crossover Polarity: 0°, 180° Filter Type: High-Pass, Low-Pass, Band-Pass Alignment: Linkwitz-Riley, Butterworth Filter Slope: 12 dB/oct, 18 dB/oct, 24 dB/oct (Butterworth only) Frequency: 20 Hz-20 kHz 1/3-Octave Graphic EQ on each Output Gain: ±15 dB ISO-Centered Frequencies: 20, 25, 31.5, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1 k, 1.25 k, 1.6 k, 2 k, 2.5 k, 3.15 k, 4 k, 5 k, 6.3 k, 8 k, 10 k, 12.5 k, 16 k, 20 k 5-Band Parametric EQ on each Output Gain: ±15 dB Center Frequency: 20 Hz-20 kHz variable Bandwidth: 0.1 octave to 6 octaves Compressor/Limiter on each Input and Output Threshold: -60.0 dB to -1.0 dB Attack: 1 ms to 2500 ms Release: 10 ms to 2500 ms Ratio: 1:1 to 20:1 Output: 0 dB to +20.0 dB

AUDIO

Noise

(20 Hz-20 kHz bandwidth, Master Out, channel Trims @ unity gain, channel EQs flat, all odd channels panned left, even channels panned right):

Master level @ unity, channel levels @ unity:	-82 dBu
Single channel to Master Out:	-100 dBu
	(referenced to 1% THD+N)

Total Harmonic Distortion (THD+N)

(1 kHz @ +10 dBu (unity level) 20 Hz-20 kHz):

Mic in to Master Out: < 0.005%

Crosstalk

(1 kHz relative to 0 dBu, 20 Hz-20 kHz bandwidth, any line input to adjacent Direct Out):

Trim to unity: < -90 dB

Frequency ResponseMic input to any output: 20 Hz-20 kHz, ± 0.5 dB**Equivalent Input Noise (EIN)**

Mic in to Direct out, max gain, 150 ohm termination:

-129.5 dBm unweighted

Common Mode Rejection (CMR)

Mic in to Direct out, max gain, 1 kHz signal: better than 80 dB

Maximum and Nominal Levels and RangesMic inputs: +18 dBu, +4 dBu,
0 to 60 dB gainLine inputs: +18 dBu, +4 dBu,
-30 to +30 dB gainBus A/B inputs: +18 dBu, +4 dBu,
-20 to +20 dB gain

All outputs: +18 dBu, +4 dBu

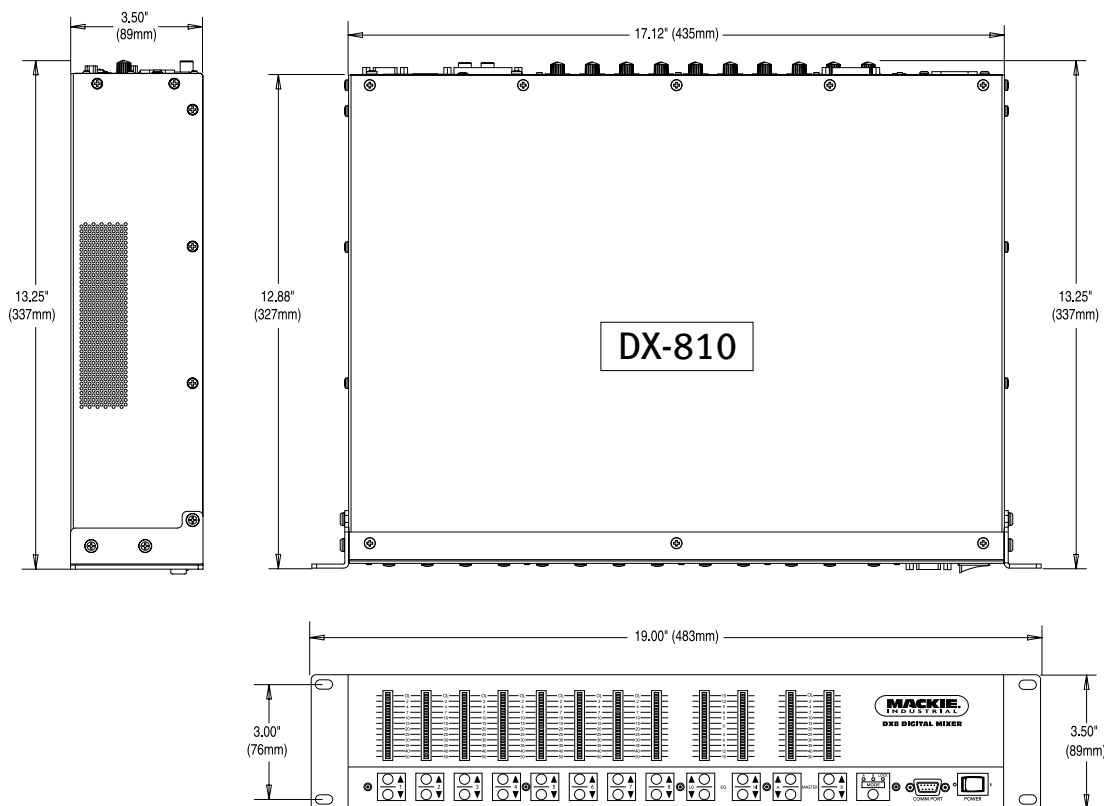
Impedances

Mic inputs: 1.3K ohms

Line inputs: 40K ohms

All other inputs: 10K ohms or greater

All outputs: 120 ohms

PHYSICAL**Dimensions (HxWxD):** 3.5"/2 RU (89mm) x 19" (483mm) x
13.25" (337mm)**Net Weight:** 12.9 lbs. (5.9 kg)**ELECTRICAL****AC Power:** 90-240 VAC, 50/60 Hz, 1.0 A**DC Power:** 24 VDC, 3 A**Phantom Power:** +48 VDC, current limited to 7 mA
per input channel**Fuse Ratings:** 1.6 A Slo Blo, 250 V**PC SYSTEM REQUIREMENTS****OS:** Windows® 95, 98 or NT®**Processor:** Pentium® or faster**RAM:** 16 MB minimum
32 MB recommended**Storage:** 10 MB free disk space**Display:** 800x600 pixels, 256 colors minimum

DISCLAIMER

Mackie Industrial continually engages in research related to product improvement, new materials, and production methods. Design refinements are introduced into existing products without notice as a routine expression of that philosophy. For this reason, any current Mackie Industrial product may differ in some respect from its published description, but will always equal or exceed the original design specifications unless otherwise stated.

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7. SERVICE INFORMATION

In the event that your DX810 should require servicing, please follow these instructions:

1. Call Mackie Industrial Tech Support at 1-888-337-7404, 8 am to 5 pm PST (Monday-Friday). Verify the problem and obtain a Return Authorization (RA) Number. Be sure to have the serial number of the unit when you call. You must have a Return Authorization Number in order to obtain warranty service at the factory or at an authorized service center.
2. Pack the unit in its original packaging. *This is very important.* Mackie Industrial is not responsible for any damage that occurs during shipping due to non-conventional packaging. Original packaging helps to minimize the possibility of shipping damage.
3. Include a legible note stating your name, return shipping address (no P.O. boxes), daytime phone number, and Return Authorization Number. Give us a detailed description of the problem, including how we can duplicate it.
4. Write the Return Authorization Number in BIG BOLD PRINT on the top of the box.
5. Ship the unit to us. We suggest insurance for all forms of cartage. Ship to this address:

Mackie Industrial
Service Department
16140 Wood-Red Road NE, Suite 5
Woodinville, WA 98072

APPENDIX A: LOGIC INPUT FUNCTIONS

Logic Input		
Function	Action	Affected I/O
Inactive	None	None
Force-On	Momentary	Input 1 to Input 8
	None	Input 1 to Input 8
Force-Off	Momentary	Input 1 to Input 8
	None	Input 1 to Input 8
Mute Input	Momentary	Input 1 to Input 8
	Latch On	Input 1 to Input 8
	Latch Off	Input 1 to Input 8
	Toggling	Input 1 to Input 8
Mute Output	Momentary	Output A to J
	Latch On	Output A to J
	Latch Off	Output A to J
	Toggling	Output A to J
Mute Group	Momentary	Mute Group 1 to Mute Group 32
	Latch On	Mute Group 1 to Mute Group 32
	Latch Off	Mute Group 1 to Mute Group 32
	Toggling	Mute Group 1 to Mute Group 32
Preset Recall	Momentary	Preset 1 to Preset 32
	Latch On	Preset 1 to Preset 32

APPENDIX B: LOGIC OUTPUT FUNCTIONS

Logic Output		
Function	Parameter	Condition
Inactive	None	None
Inp Sig Present	Input 1-8	Input Signal > -40 dB
Out Sig Present	Output A-J	Output A Signal > -40 dB
Preset Active	Preset 1-32	Preset Active
Priority Inactive	None	No priority input forced on

APPENDIX C: SELECTION REMOTE PREDEFINED FUNCTIONS

DX-SW4 Remote Switch Control (4-button/4-LED)						
Switch Positions			Control 1	Control 2	Control 3	Control 4
ID	1 through 8	Function				
0	00000000	Mute Input 1-4	Mute Input 1	Mute Input 2	Mute Input 3	Mute Input 4
1	10000000	Mute Input 5-8	Mute Input 5	Mute Input 6	Mute Input 7	Mute Input 8
2	01000000	Mute Output A-D	Mute Output A	Mute Output B	Mute Output C	Mute Output D
3	11000000	Mute Output E-H	Mute Output E	Mute Output F	Mute Output G	Mute Output H
4	00100000	Mute Output G-J	Mute Output G	Mute Output H	Mute Output I	Mute Output J
5	10100000	Mute Group 1-4	Mute Group 1	Mute Group 2	Mute Group 3	Mute Group 4
6	01100000	Mute Group 5-8	Mute Group 5	Mute Group 6	Mute Group 7	Mute Group 8
7	11100000	Mute Group 9-12	Mute Group 9	Mute Group 10	Mute Group 11	Mute Group 12
8	00010000	Mute Group 13-16	Mute Group 13	Mute Group 14	Mute Group 15	Mute Group 16
9	10010000	Mute Group 17-20	Mute Group 17	Mute Group 18	Mute Group 19	Mute Group 20
10	01010000	Mute Group 21-24	Mute Group 21	Mute Group 22	Mute Group 23	Mute Group 24
11	11010000	Mute Group 25-28	Mute Group 25	Mute Group 26	Mute Group 27	Mute Group 28
12	00110000	Mute Group 29-32	Mute Group 29	Mute Group 30	Mute Group 31	Mute Group 32
13	10110000	Preset Recall 1-4	Preset Recall 1	Preset Recall 2	Preset Recall 3	Preset Recall 4
14	01110000	Preset Recall 5-8	Preset Recall 5	Preset Recall 6	Preset Recall 7	Preset Recall 8
15	11110000	Preset Recall 9-12	Preset Recall 9	Preset Recall 10	Preset Recall 11	Preset Recall 12
16	00001000	Preset Recall 13-16	Preset Recall 13	Preset Recall 14	Preset Recall 15	Preset Recall 16
17	10001000	Preset Recall 17-20	Preset Recall 17	Preset Recall 18	Preset Recall 19	Preset Recall 20
18	01001000	Preset Recall 21-24	Preset Recall 21	Preset Recall 22	Preset Recall 23	Preset Recall 24
19	11001000	Preset Recall 25-28	Preset Recall 25	Preset Recall 26	Preset Recall 27	Preset Recall 28
20	00101000	Preset Recall 29-32	Preset Recall 29	Preset Recall 30	Preset Recall 31	Preset Recall 32
21-255		For Future Updates				

APPENDIX D: LEVEL REMOTE PREDEFINED FUNCTIONS

DX-RVC Remote Volume Control (2-button/12-LED)							
Switch Positions				Switch Positions			
ID	1 through 8	Function	In/Out	ID	1 through 8	Function	In/Out
0	00000000	Input Level	1A	61	10111100	Input Level	7B
1	10000000	Input Level	1B	62	01111100	Input Level	7C
2	01000000	Input Level	1C	63	11111100	Input Level	7D
3	11000000	Input Level	1D	64	00000010	Input Level	7E
4	00100000	Input Level	1E	65	10000010	Input Level	7F
5	10100000	Input Level	1F	66	01000010	Input Level	7G
6	01100000	Input Level	1G	67	11000010	Input Level	7H
7	11100000	Input Level	1H	68	00100010	Input Level	7I
8	00010000	Input Level	1I	69	10100010	Input Level	7J
9	10010000	Input Level	1J	70	01100010	Input Level	8A
10	01010000	Input Level	2A	71	11100010	Input Level	8B
11	11010000	Input Level	2B	72	00010010	Input Level	8C
12	00110000	Input Level	2C	73	10010010	Input Level	8D
13	10110000	Input Level	2D	74	01010010	Input Level	8E
14	01110000	Input Level	2E	75	11010010	Input Level	8F
15	11110000	Input Level	2F	76	00110010	Input Level	8G
16	00001000	Input Level	2G	77	10110010	Input Level	8H
17	10001000	Input Level	2H	78	01110010	Input Level	8I
18	01001000	Input Level	2I	79	11110010	Input Level	8J
19	11001000	Input Level	2J	80	00001010	Output Level	A
20	00101000	Input Level	3A	81	10001010	Output Level	B
21	10101000	Input Level	3B	82	01001010	Output Level	C
22	01101000	Input Level	3C	83	11001010	Output Level	D
23	11101000	Input Level	3D	84	00101010	Output Level	E
24	00011000	Input Level	3E	85	10101010	Output Level	F
25	10011000	Input Level	3F	86	01101010	Output Level	G
26	01011000	Input Level	3G	87	11101010	Output Level	H
27	11011000	Input Level	3H	88	00011010	Output Level	I
28	00111000	Input Level	3I	89	10011010	Output Level	J
29	10111000	Input Level	3J	90	01011010	Group Level	1
30	01111000	Input Level	4A	91	11011010	Group Level	2
31	11111000	Input Level	4B	92	00111010	Group Level	3
32	00000100	Input Level	4C	93	10111010	Group Level	4
33	10000100	Input Level	4D	94	01111010	Group Level	5
34	01000100	Input Level	4E	95	11111010	Group Level	6
35	11000100	Input Level	4F	96	00000110	Group Level	7
36	00100100	Input Level	4G	97	10000110	Group Level	8
37	10100100	Input Level	4H	98	01000110	Group Level	9
38	01100100	Input Level	4I	99	11000110	Group Level	10
39	11100100	Input Level	4J	100	00100110	Group Level	11
40	00010100	Input Level	5A	101	10100110	Group Level	12
41	10010100	Input Level	5B	102	01100110	Group Level	13
42	01010100	Input Level	5C	103	11100110	Group Level	14
43	11010100	Input Level	5D	104	00010110	Group Level	15
44	00110100	Input Level	5E	105	10010110	Group Level	16
45	10110100	Input Level	5F	106	01010110	Group Level	17
46	01110100	Input Level	5G	107	11010110	Group Level	18
47	11110100	Input Level	5H	108	00110110	Group Level	19
48	00001100	Input Level	5I	109	10110110	Group Level	20
49	10001100	Input Level	5J	110	01110110	Group Level	21
50	01001100	Input Level	6A	111	11110110	Group Level	22
51	11001100	Input Level	6B	112	00001110	Group Level	23
52	00101100	Input Level	6C	113	10001110	Group Level	24
53	10101100	Input Level	6D	114	01001110	Group Level	25
54	01101100	Input Level	6E	115	11001110	Group Level	26
55	11101100	Input Level	6F	116	00101110	Group Level	27
56	00011100	Input Level	6G	117	10101110	Group Level	28
57	10011100	Input Level	6H	118	01101110	Group Level	29
58	01011100	Input Level	6I	119	11101110	Group Level	30
59	11011100	Input Level	6J	120	00011110	Group Level	31
60	00111100	Input Level	7A	121	10011110	Group Level	32
				122-255		Reserved for future updates	



DX810 DIGITAL MIXER

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